

Grey Water Discharges – Developing a PAME Project Proposal

Context

The impacts from shipping can be severe and the risks real to both marine habitat and Indigenous and community food security in the Arctic. Risks are equally high if essential goods and development don't reach people in the north. The challenge for policy makers is to get the rules right to decrease the impacts and provide opportunity for people in the Arctic. Part of contributing to effective management and regulation of shipping is being on top of emerging social and environmental issues early, to give operators plenty of lead time for adaptive management, which will reduce impacts as soon and as effectively as possible. Grey water discharges from ships is one such issue.

Vessel grey water is considered accommodation (e.g. shower, bath), laundry, dishwasher, and galley wastewater, and is distinct from drainage from toilets, urinals, hospitals, and cargo spaces.¹ Grey water can contain a variety of environmentally harmful pollutants and contaminants, including microplastics.

Grey water discharge, and the associated impacts of microplastics on the marine environment and its effects on marine biodiversity, have received increasing attention as of late. For example, in a submission² to the IMO's MEPC 72 co-sponsors outline concerns associated with vessel grey water discharges from international shipping, and that same Committee took the significant step by agreeing to develop an action plan to address marine plastic litter from ships and linking grey water as a vector for microplastic pollution.

Various IMO member states have raised the grey water issue in the past,³ and in paragraph 2.36 of MEPC 63/23, the Committee agreed "that handling of grey water and sewage water on board ships should be regulated under MARPOL Annex IV and invited Parties to propose relevant amendments to that Annex for consideration at a future session of the Committee."

Grey Water RoD from PAME I 2019

- *PAME invites its members to submit to PAME II-2019 research reports and related information on grey water discharges from vessels in the Arctic.*

Based on this invitation from PAME, a number of documents were submitted by WWF as background information for consideration at PAME II 2019 - a summary is below.

Developing a PAME project proposal

In order to take current information sharing on this issue to the next level of an official PAME project, States and PPs need to engage and agree to co-lead. To support that leadership and engagement, the suggestion is that a small group develop and submit a project proposal to PAME I 2020. The proposal

¹ *E.g.*, Resolution MEPC.219(63), 2012 Guidelines for the Implementation of MARPOL Annex V.

² MEPC 72/16/6

³ *See also* Norway, MEPC 60/21/1, 12 Jan. 2010; Norway, DE 54/INF.5, 20 Aug. 2010; Norway, DE 54/13/7, 20 Aug. 2010; New Zealand, DE 55/12/3, 17 Dec. 2010.

would use the PAME project proposal template to define outcomes, deliverables, a timeline and budget. A RoD coming out of PAME II 2019 inviting this proposal could be:

- Based on information shared and dialogue within the SEG on the issue of grey water discharges in the Arctic, PAME invites SEG members to develop a project proposal for how continued work could progress on this topic

In addition to the development of a project proposal, and to ensure the ongoing sharing of information, supplemental RoDs for PAME II 2019 could be considered, including but not limited to:

- PAME invites an Alaskan state representative to present a perspective and regulatory expertise on grey water discharges at the next SEG/PAME meeting
- PAME invites Norway to present their IMO paper on sewage and discuss links to grey water
- PAME asks the IMO representative to the Arctic Council to give a presentation at the next meeting on the history of the grey water/wastewater issues at the IMO
- PAME continues to invite members to submit to PAME research reports and related information on grey water discharges from vessels in the Arctic

Summary of documents submitted to PAME II 2019

All documents can be found on the password protected SEG meeting page:

<https://www.pame.is/index.php/protected-area/2019/pame-ii-2019#pre-meetings-documents-monday-9-september>

- (WWF/Ocean Conservancy) Bilateral Canada/US Vancouver grey water workshop report – 2019
 - A summary report from the May 1-2 workshop in Vancouver which included both Canadian Arctic and Alaskan Indigenous community representatives and discussed current regulations, environmental impacts, discharge and treatment options.
- (WWF/Vard Marine) Greywater Generation Estimates for the BC Coast - 2019
 - Grey water generation estimates using 2017 AIS ship track data for the west coast of Canada
 - Media release from August 2019: <http://www.wwf.ca/newsroom/?30581/grey-water-WWF-Canada-study>
 - Grey water generation map: <http://d2akrl9rvxl3z3.cloudfront.net/downloads/westcoastgreywaterheatmapv8.jpg>
- (WWF/Vard Marine) Canadian Arctic Greywater Report: Estimates, Forecasts, and Treatment Technologies – 2018
 - (map from the report: http://d2akrl9rvxl3z3.cloudfront.net/downloads/grey_water_map.png)
 - Using 2016 AIS ship track data for the NORDREG Canadian Arctic, the report maps, estimates, and forecasts out to 2035 volumes and locations of potential grey water dumping.
- (FOEI, Greenpeace, WWF, CSC and Pacific Environment) IMO MEPC 72/16/6 and MEPC 72/INF.21 - Vessel grey water concerns - 2018

- This submission to the IMO outlines concerns associated with vessel grey water discharges from international shipping including definitions, constituents/characteristics, impacts, generation rates, regulations, and treatment technologies.
- (Norway) IMO MEPC 74/14 - Expanding the scope of the existing output 1.26 to include a revision of MARPOL Annex IV (Norway) -
 - This submission to the IMO... 'proposes an expansion of the scope of the existing output on "Amendments to the 2012 Guidelines on implementation of effluent standards and performance tests for sewage treatment plants (resolution MEPC.227(64), as amended by resolution MEPC.284(70)) to reduce inconsistencies in their application" to include revisions of MARPOL Annex IV and associated guidelines.
 - The key study related to this proposal is from the Netherlands, the results showed that 'the vast majority of the systems did not meet the applicable performance standard. A total of 127 effluents were analysed and only four effluents/samples met the requirements in the performance standard, meaning that 97% were not in compliance'.
- (a number of states) IMO MEPC 73/8/2 - Draft action plan to address marine plastic litter from ships – 2018
 - Includes a section on grey water:
 - Grey water is produced in greater quantities than sewage on commercial vessels. On cruise ships, grey water can constitute 90% of liquid waste generated on board. The U.S. EPA, based on 29 cruise ships, indicated average grey water production to be 255 litres per person per day (l/p/d). DNV indicated crew generation rates of 105 l/p/d for tankers, 127 l/p/d for cargo ships, and 175 l/p/d for offshore vessels (MEPC72/16/6).
 - The microplastic content in grey water would derive from personal care products, washing of laundry, etc., and should be correlated to the number of persons on board the ship. Grey water is not considered garbage in the context of MARPOL Annex V. To date, there are no restrictions on the discharge of grey water, whereas ship sewage has been regulated under MARPOL Annex IV since 2003.
 - The co-sponsors suggest that IMO could consider regulating the discharge of grey water upon review of the IMO Marine Plastic Litter from Ships Study, noting that grey water does also contain a variety of harmful substances to the environment.
- EPA Cruise Ship Discharge Assessment Report – 2008
 - Report from the US Environmental Protection Agency on definitions, vessel generation amounts, regulations, characteristics, impacts, and mitigative solutions.
- EPA Graywater Discharges from Vessels – 2011
 - Report from the US Environmental Protection Agency on management practices, definitions, characteristics and control strategies.
- Alaska Department of Environment wastewater discharge permit – 2014

- Alaska state requirements for managing and in specific circumstances discharging grey water.
- (Pew Charitable Trusts, Kawerak, Inc., U.S. Coast Guard) Quantifying and mitigating three major vessel waste streams in the northern Bering Sea – 2019
 - Article in Marine Policy detailing the ecological and cultural significance of the northern Bering Sea and Bering Strait waters to Indigenous people, and the risk to these waters from increasing vessel traffic and associated waste streams. The article quantifies the amount of three principal waste streams – oil, sewage, and grey water – currently being discharged in these waters, and concludes with a discussion of ship- and areabased options to reduce the waste's impact to the region.